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(81) Designated States *(national)*: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

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Published:
— *With international search report.*
— *With amended claims and statement.*

Date of publication of the amended claims and statement:
1 March 2001

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

WO 00/73449 A1

(54) Title: DNA ENCODING SNORF33 RECEPTOR

(57) Abstract: This invention provides isolated nucleic acids encoding mammalian SNORF33 receptors, purified mammalian SNORF33 receptors, vectors comprising nucleic acid encoding mammalian SNORF33 receptors, cells comprising such vectors, antibodies directed to mammalian SNORF33 receptors, nucleic acid probes useful for detecting nucleic acid encoding mammalian SNORF33 receptors, antisense oligonucleotides complementary to unique sequences of nucleic acid encoding mammalian SNORF33 receptors, transgenic, nonhuman animals which express DNA encoding normal or mutant mammalian SNORF33 receptors, methods of isolating mammalian SNORF33 receptors, methods of treating an abnormality that is linked to the activity of the mammalian SNORF33 receptors, as well as methods of determining binding of compounds to mammalian SNORF33 receptors, methods of identifying agonists and antagonists of SNORF33 receptors, and agonists and antagonists so identified.

AMENDED CLAIMS

[received by the International Bureau on 15 December 2000 (15.12.00); original claims 33 and 34 amended; remaining claims unchanged (1 page)]

26. The plasmid of claim 23 designated pcDNA3.1-rSNORF33-f (ATCC Patent Depository No. PTA-102).

27. The plasmid of claim 23 designated pEXJ-mSNORF33-f (ATCC Patent Depository No. PTA-1665).

28. A cell comprising the vector of claim 21.

29. A cell of claim 28, wherein the cell is a non-mammalian cell.

30. A cell of claim 29, wherein the non-mammalian cell is a *Xenopus* oocyte cell or a *Xenopus* melanophore cell.

31. A cell of claim 28, wherein the cell is a mammalian cell.

32. A mammalian cell of claim 31, wherein the cell is a COS-7 cell, a 293 human embryonic kidney cell, a NIH-3T3 cell, a LM(tk-) cell, a mouse Y1 cell, or a CHO cell.

33. The CHO cell of claim 32 designated CHO-ratSNORF33-7 (ATCC Patent Depository No. PTA-1807).

34. The 293 cell of claim 32 designated 293-ratSNORF33-31 (ATCC Patent Depository No. PTA-1806).

35. A cell of claim 24, wherein the cell is an insect cell.

36. An insect cell of claim 29, wherein the insect cell is

STATEMENT UNDER ARTICLE 19(1)

The accompanying amendments under Article 19 to the claims have been made to include American Type Culture Collection (ATCC) deposit information which was not available at the time of filing the International Application. Applicant maintains that the replacement page 201 is made merely to complete the application. No new matter has been added.

FIGURE 1

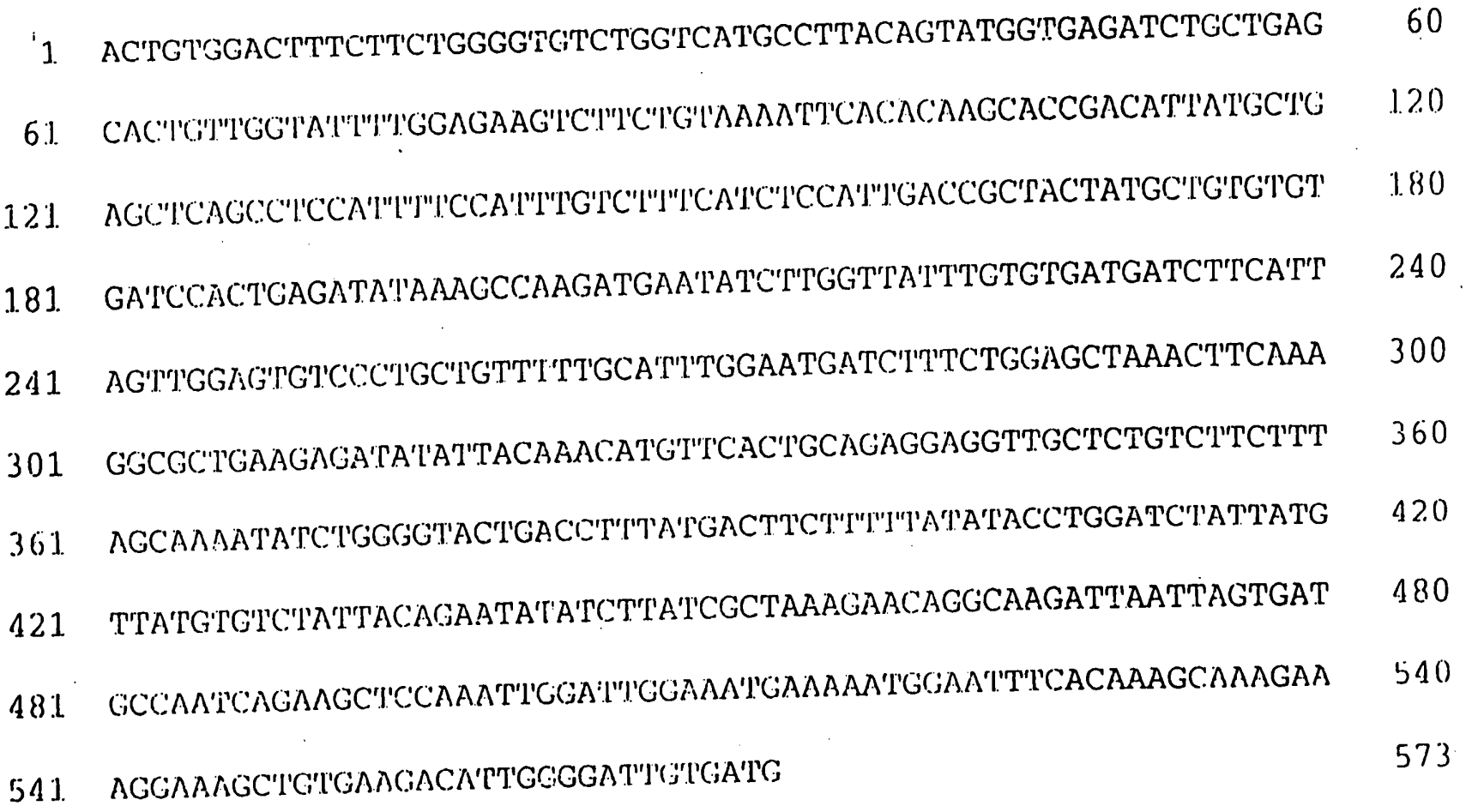

1 ACTGTGGACTTTCTTCTGGGGTGTCTGGTCATGCCTTACAGTATGGTGAGATCTGCTGAG 60
61 CACTGTTGGTATTTTGGAGAAGTCTTCTGTAAAATTCACACAAGCACCGACATTATGCTG 120
121 AGCTCAGCCTCCATTTTCCATTTGTCTTTCATCTCCATTGACCGCTACTATGCTGTGTGT 180
181 GATCCACTGAGATATAAAGCCAAGATGAATATCTTGGTTATTTGTGTGATGATCTTCATT 240
241 AGTTGGAGTGTCCCTGCTGTTTTTGCATTTGGAATGATCTTTCTGGAGCTAAACTTCAAA 300
301 GGCGCTGAAGAGATATATTACAAACATGTTCACTGCAGAGGAGGTTGCTCTGTCTTCTTT 360
361 AGCAAAATATCTGGGGTACTGACCTTTATGACTTCTTTTTTATATACCTGGATCTATTATG 420
421 TTATGTGTCTATTACAGAATATATCTTATCGCTAAAGAACAGGCAAGATTAATTAGTGAT 480
481 GCCAATCAGAAGCTCCAAATTGGATTGGAAATGAAAAATGGAATTTCACAAAGCAAAGAA 540
541 AGGAAAGCTGTGAAGACATTGGGGATTGTGATG 573

FIGURE 2

1	T	V	D	F	L	L	G	C	L	V	M	P	Y	S	M	V	R	S	A	E	20
21	H	C	W	Y	F	G	E	V	F	C	K	I	H	T	S	T	D	I	M	L	40
41	S	S	A	S	I	F	H	L	S	F	I	S	I	D	R	Y	Y	A	V	C	60
61	D	P	L	R	Y	K	A	K	M	N	I	L	V	I	C	V	M	I	F	I	80
81	S	W	S	V	P	A	V	F	A	F	G	M	I	F	L	E	L	N	F	K	100
101	G	A	E	E	I	Y	Y	K	H	V	H	C	R	G	G	C	S	V	F	F	120
121	S	K	I	S	G	V	L	T	F	M	T	S	F	Y	I	P	G	S	I	M	140
141	L	C	V	Y	Y	R	I	Y	L	I	A	K	E	Q	A	R	L	I	S	D	160
161	A	N	Q	K	L	Q	I	G	L	E	M	K	N	G	I	S	Q	S	K	E	180
181	R	K	A	V	K	T	L	G	I	V	M										191

FIGURE 3A

```
1   ATTGCTCGACAGCCAAAGGGACAGAGCAGCCTGTGTTTAGTTCTCTGTAGTGATGCATCT  60
61  TTGCCACAATAGCGCGAATATTTCCCACACGAACAGCAACTGGTCAAGGGATGTCCGTGC  120
121 TTCGCTGTACAGCTTAATATCACTCATAATTCTAACCACTCTGGTTGGCAACTTAATAGT  180
181 AATCATTTCGATATCCCACTTCAAGCAACTTCACACGCCCACAAATTGGCTCCTTCATTC  240
241 CATGGCCGTTGTCGACTTTCTGCTGGGCTGTCTGGTCATGCCCTACAGCATGGTGAGAAC  300
301 AGTTGAGCACTGCTGGTACTTTGGGGAACTCTTCTGCAAACTTCACACCAGCACTGATAT  360
361 CATGCTGAGCTCGGCATCCATTCTCCACCTAGCCTTCATTTCCATTGACCGCTACTATGC  420
421 TGTGTGCGACCCTTTAAGATACAAAGCCAAGATCAATCTCGCCGCCATTTTTGTGATGAT  480
481 CCTCATTAGCTGGAGCCTTCCTGCTGTTTTTGCATTTGGGATGATCTTCCTGGAGCTGAA  540
541 CTTAGAAGGAGTTGAGGAGCTGTATCACAATCAGGTCTTCTGCCTGCGCGGCTGTTTTCC  600
601 CTTCTTCAGTAAAGTATCTGGGGTACTGGCATTCATGACGTCTTTCTATATACCTGGATC  660
```

FIGURE 3B

```
661  TGTTATGTTATTTGTTTACTATAGAATATATTTCATAGCTAAAGGACAAGCAAGGTCAAT  720
721  TAATCGTGCAAATCTTCAAGTTGGATTGGAAGGGGAAAGCAGAGCGCCACAAAGCAAGGA  780
781  AACAAAAGCCGCGAAAACCTTAGGGATCATGGTGGGCGTTTTCCTCCTGTGCTGGTGCCC  840
841  GTTCTTTTTCTGCATGGTCCTGGACCCTTTCCTGGGCTATGTTATCCCACCCACTCTGAA  900
901  TGACACACTGAATTGGTTTGGGTACCTGAACTCTGCCTTCAACCCGATGGTTTATGCCTT  960
961  TTTCTATCCCTGGTTCAGAAGAGCGTTGAAGATGGTTCTCTTCGGTAAAATTTTCCAAAA 1020
1021 AGATTCATCTAGGTCTAAGTTATTTTTGTAACGCAATCCATGAAACCAGTATATTTTGTA 1080
1081 GTTCTTAAGAGCAGTTGGTGA                                        1101
```

FIGURE 4A

1	M	H	L	C	H	N	S	A	N	I	S	H	T	N	S	N	W	S	R	D	20
21	V	R	A	S	L	Y	S	L	I	S	L	I	I	L	T	T	L	V	G	N	40
41	L	I	V	I	I	S	I	S	H	F	K	Q	L	H	T	P	T	N	W	L	60
61	L	H	S	M	A	V	V	D	F	L	L	G	C	L	V	M	P	Y	S	M	80
81	V	R	T	V	E	H	C	W	Y	F	G	E	L	F	C	K	L	H	T	S	100
101	T	D	I	M	L	S	S	A	S	I	L	H	L	A	F	I	S	I	D	R	120
121	Y	Y	A	V	C	D	P	L	R	Y	K	A	K	I	N	L	A	A	I	F	140
141	V	M	I	L	I	S	W	S	L	P	A	V	F	A	F	G	M	I	F	L	160
161	E	L	N	L	E	G	V	E	E	L	Y	H	N	Q	V	F	C	L	R	G	180
181	C	F	P	F	F	S	K	V	S	G	V	L	A	F	M	T	S	F	Y	I	200
201	P	G	S	V	M	L	F	V	Y	Y	R	I	Y	F	I	A	K	G	Q	A	220

FIGURE 4B

221	R	S	I	N	R	A	N	L	Q	V	G	L	E	G	E	S	R	A	P	Q	240
241	S	K	E	T	K	A	A	K	T	L	G	I	M	V	G	V	F	L	L	C	260
261	W	C	P	F	F	F	C	M	V	L	D	P	F	L	G	Y	V	I	P	P	280
281	T	L	N	D	T	L	N	W	F	G	Y	L	N	S	A	F	N	P	M	V	300
301	Y	A	F	F	Y	P	W	F	R	R	A	L	K	M	V	L	F	G	K	I	320
321	F	Q	K	D	S	S	R	S	K	L	F	L									332

FIGURE 5A


```
   1 TCAGGAATGATGCCCTTTTGCCACAATATAATTAATATTTCCTGTGTGAAAAACAACTGG  60
  61 TCAAATGATGTCCGTGCTTCCCTGTACAGTTTAATGGTGCTCATAATTCTGACCACACTC 120
 121 GTTGGCAATCTGATAGTTATTGTTTCTATATCACACTTCAAACAACTTCATACCCCAACA 180
 181 AATTGGCTCATTCATTCCATGGCCACTGTGGACTTTCTTCTGGGGTGTCTGGTCATGCCT 240
 241 TACAGTATGGTGAGATCTGCTGAGCACTGTTGGTATTTTGGAGAAGTCTTCTGTAAAATT 300
 301 CACACAAGCACCGACATTATGCTGAGCTCAGCCTCCATTTTCCATTTGTCTTTCATCTCC 360
 361 ATTGACCGCTACTATGCTGTGTGTGATCCACTGAGATATAAAGCCAAGATGAATATCTTG 420
 421 GTTATTTGTGTGATGATCTTCATTAGTTGGAGTGTCCCTGCTGTTTTTGCATTTGGAATG 480
 481 ATCTTTCTGGAGCTAAACTTCAAAGGCGCTGAAGAGATATATTACAAACATGTTCACTGC 540
 541 AGAGGAGGTTGCTCTGTCTTCTTTAGCAAAATATCTGGGGTACTGACCTTTATGACTTCT 600
 601 TTTTATATACCTGGATCTATTATGTTATGTGTCTATTACAGAATATATCTTATCGCTAAA 660
```

FIGURE 5B

```
661  GAACAGGCAAGATTAATTAGTGATGCCAATCAGAAGCTCCAAATTGGATTGGAAATGAAA  720
721  AATGGAATTTCACAAAGCAAAGAAAGGAAAGCTGTGAAGACATTGGGGATTGTGATGGGA  780
781  GTTTTCCTAATATGCTGGTGCCCTTTCTTTATCTGTACAGTCATGGACCCTTTTCTTCAC  840
841  TACATTATTCCACCTACTTTGAATGATGTGTTGATTTGGTTTGGCTACTTGAACTCTACA  900
901  TTTAATCCAATGGTTTATGCATTTTTCTATCCTTGGTTTAGAAAAGCACTGAAGATGATG  960
951  CTGTTTGGTAAAATTTTCCAAAAAGATTCATCCAGGTGTAAATTATTTTTGGAATTGAGT 1020
1021 TCATAGAATTATTATATT                                          1038
```

FIGURE 6A

1	M M P F C H N I I N I S C V K N N W S N	20
21	D V R A S L Y S L M V L I I L T T L V G	40
41	N L I V I V S I S H F K Q L H T P T N W	60
61	L I H S M A T V D F L L G C L V M P Y S	80
81	M V R S A E H C W Y F G E V F C K I H T	100
101	S T D I M L S S A S I F H L S F I S I D	120
121	R Y Y A V C D P L R Y K A K M N I L V I	140
141	C V M I F I S W S V P A V F A F G M I F	160
161	L F L N F K G A E E I Y Y K H V H C R G	180
181	G C S V F F S K I S G V L T F M T S F Y	200
201	I P G S I M L C V Y Y R I Y L I A K E Q	220

FIGURE 6B

221	A	R	L	I	S	D	A	N	Q	K	L	Q	I	G	L	E	M	K	N	G	240
241	I	S	Q	S	K	E	R	K	A	V	K	T	L	G	I	V	M	G	V	F	260
261	L	I	C	W	C	P	F	F	I	C	T	V	M	D	P	F	L	H	Y	I	280
281	I	P	P	T	L	N	D	V	L	I	W	F	G	Y	L	N	S	T	F	N	300
301	P	M	V	Y	A	F	F	Y	P	W	F	R	K	A	L	K	M	M	L	F	320
321	G	K	I	F	Q	K	D	S	S	R	C	K	L	F	L	E	L	S	S	*	340

FIGURE 7A

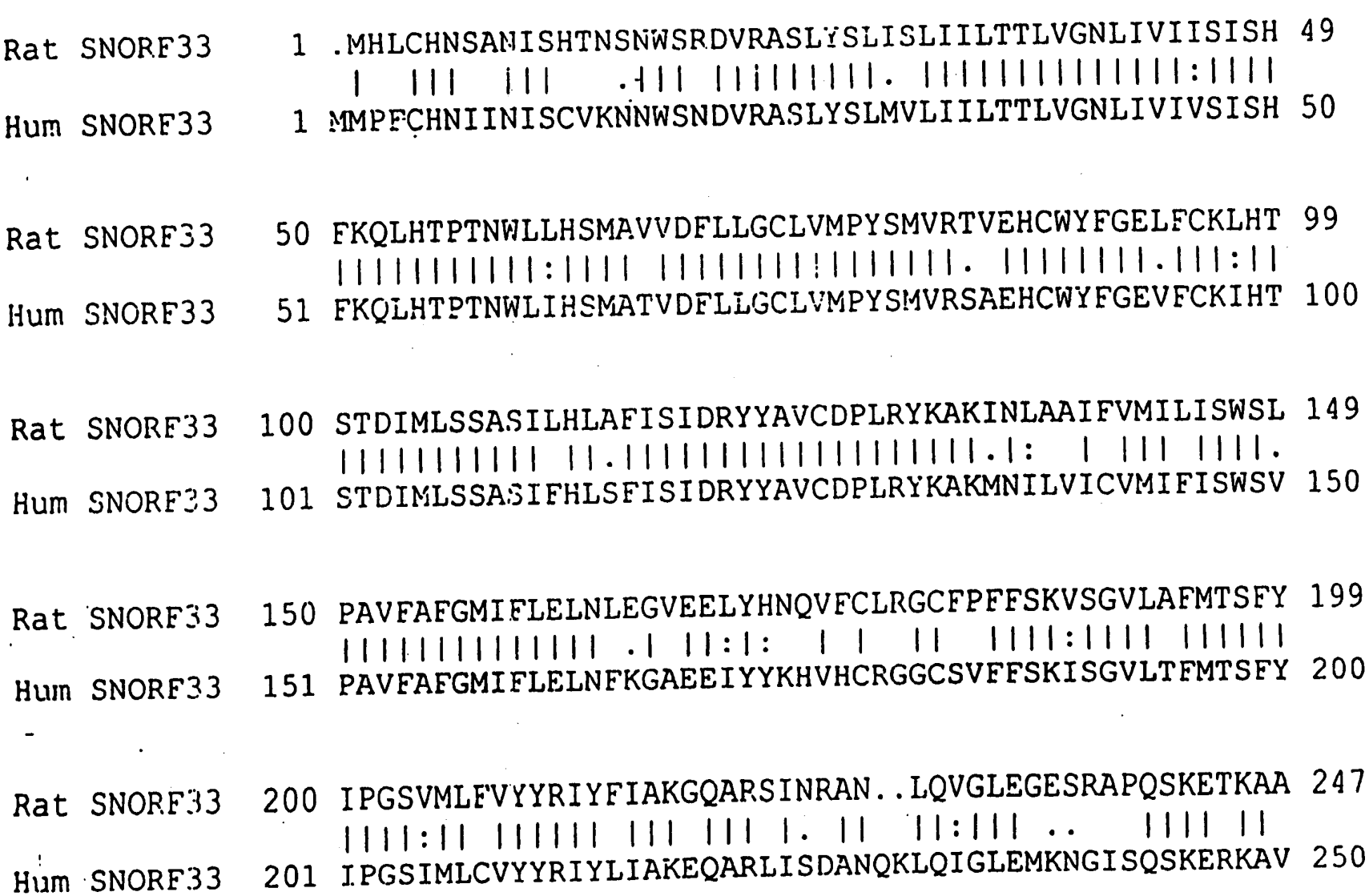

Rat SNORF33 1 .MHLCHNSANISHTNSNWSRDVRASLYSLISLIILTTLVGNLIVIISISH 49
Hum SNORF33 1 MMPFCHNIINISCVKNNWSNDVRASLYSLMVLIILTTLVGNLIVIVSISH 50
Rat SNORF33 50 FKQLHTPTNWLLHSMAVVDFLLGCLVMPYSMVRTVEHCWYFGELFCKLHT 99
Hum SNORF33 51 FKQLHTPTNWLIHSMATVDFLLGCLVMPYSMVRSAEHCWYFGEVFCKIHT 100
Rat SNORF33 100 STDIMLSSASILHLAFISIDRYYAVCDPLRYKAKINLAAIFVMILISWSL 149
Hum SNORF33 101 STDIMLSSASIFHLSFISIDRYYAVCDPLRYKAKMNILVICVMIFISWSV 150
Rat SNORF33 150 PAVFAFGMIFLELNLEGVEELYHNQVFCLRGCFPFFSKVSGVLAFMTSFY 199
Hum SNORF33 151 PAVFAFGMIFLELNFKGAEEIYYKHVHCRGGCSVFFSKISGVLTFMTSFY 200
Rat SNORF33 200 IPGSVMLFVYYRIYFIAKGQARSINRAN..LQVGLEGESRAPQSKETKAA 247
Hum SNORF33 201 IPGSIMLCVYYRIYLIAKEQARLISDANQKLQIGLEMKNGISQSKERKAV 250

FIGURE 7B

```
Rat SNORF33   248 KTLGIMVGVFLLCWCPFFFCMVLDPFLGYVIPPTLNDTLNWFGYLNSAFN 297
                  |||||..||||:||||-|| | |:|||| |:||||||| | ||||||| ||
Hum SNORF33   251 KTLGIVMGVFLICWCPFFICTVMDPFLHYIIPPTLNDVLIWFGYLNSTFN 300

Rat SNORF33   298 PMVYAFFYPWFRRALKMVLFGKIFQKDSSRSKLFL....*           333
                  |||||||||||||:||||.||||||||||||| ||||
Hum SNORF33   301 PMVYAFFYPWFRKALKMMLFGKIFQKDSSRCKLFLELSS*           340
```

FIGURE 8

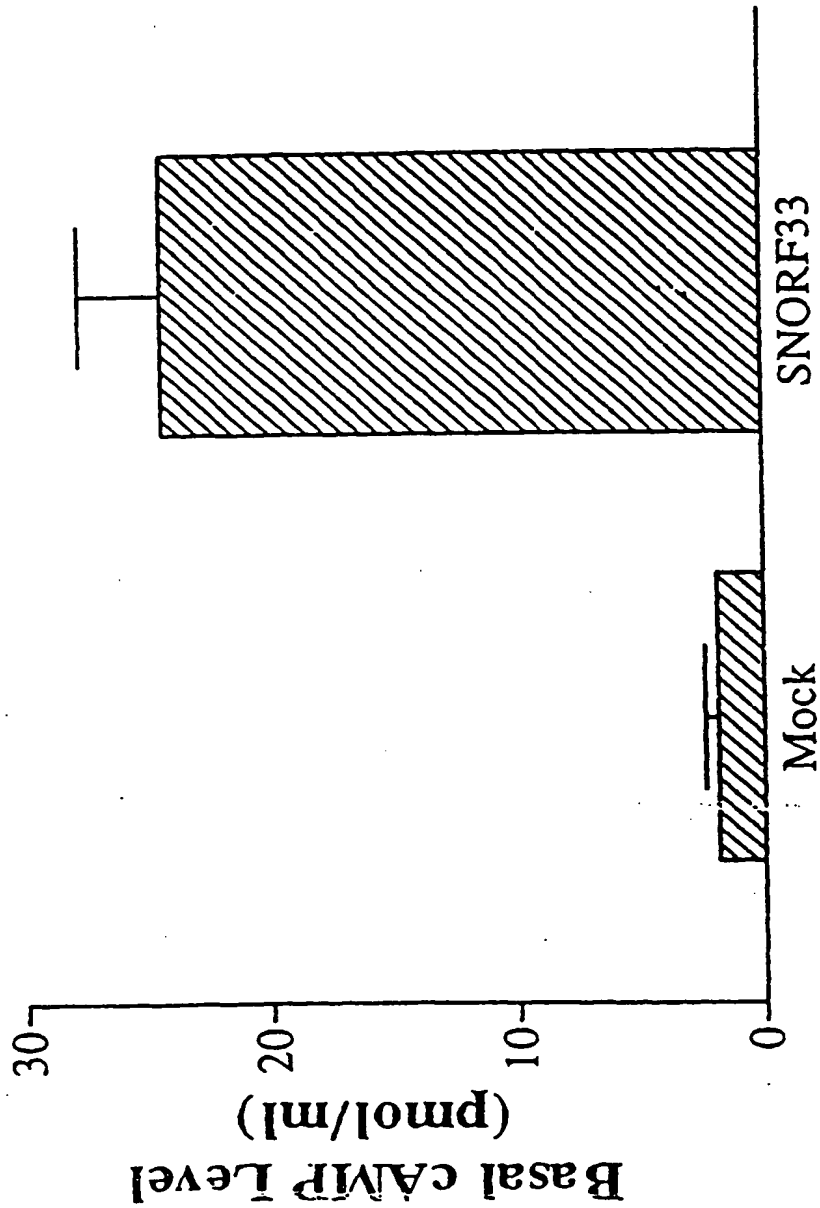

Basal cAMP Levels in Mock- and rat SNORF33-Transfected Cos-7 cells
Basal cAMP Level (pmol/ml)
30
20
10
0
Mock
SNORF33

FIGURE 9

Agonist-Mediated Increase in Intracellular cAMP Levels in Mock- and rat SNORF33-Transfected Cos-7 Cells

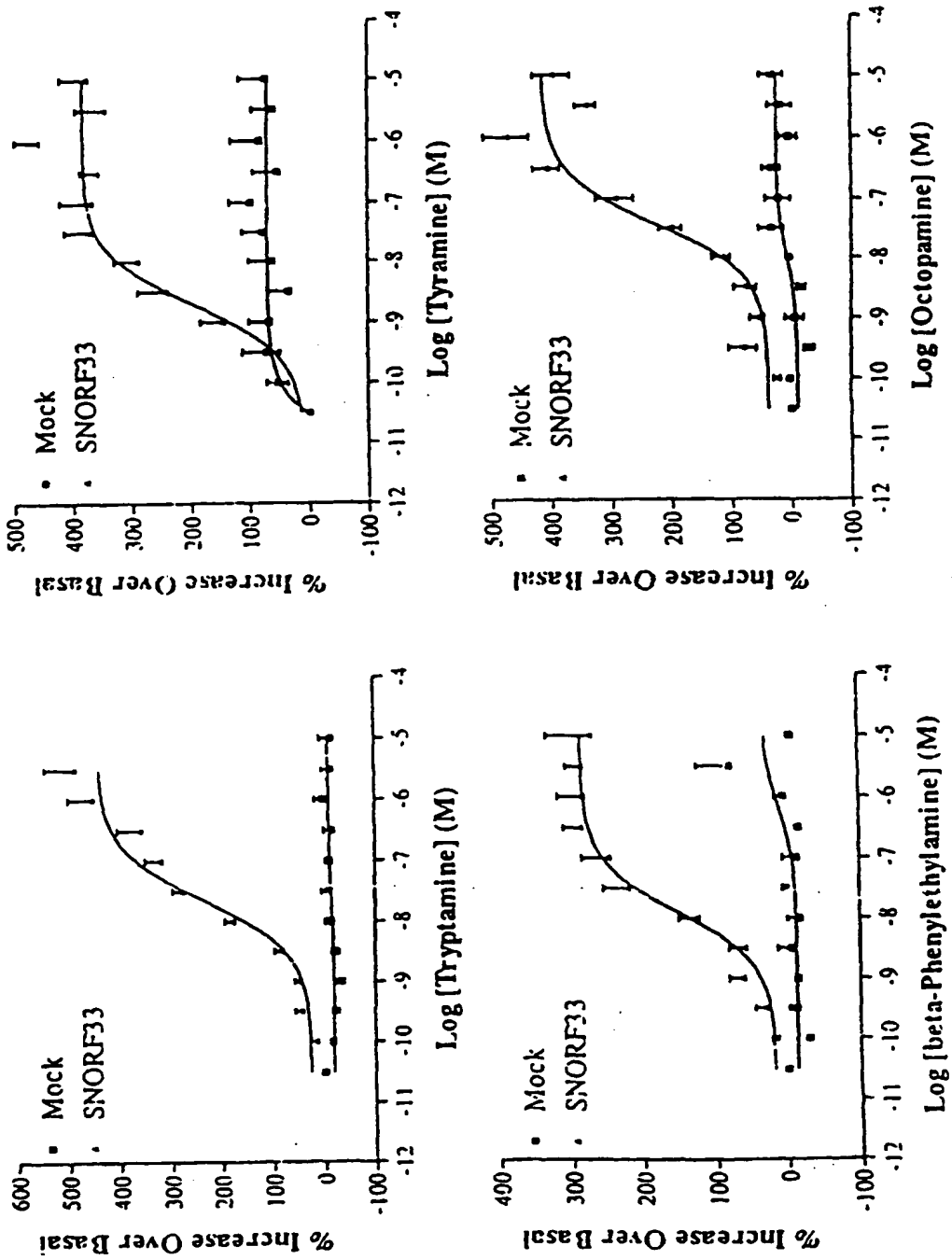


FIGURE 10

Agonist-Mediated Increase in Intracellular cAMP Levels in Mock- and rat SNORF33-Transfected Cos-7 Cells

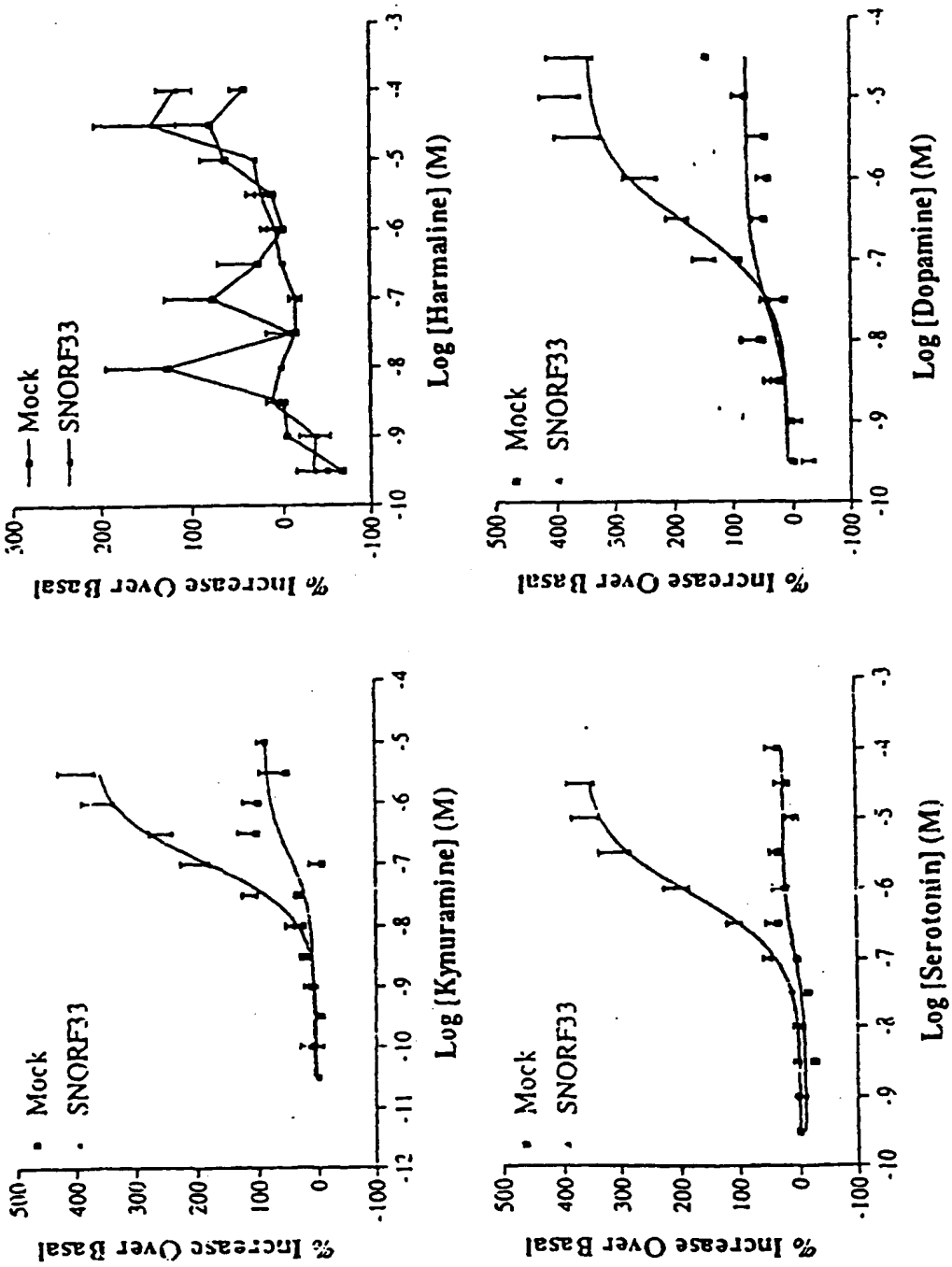


Figure 11A

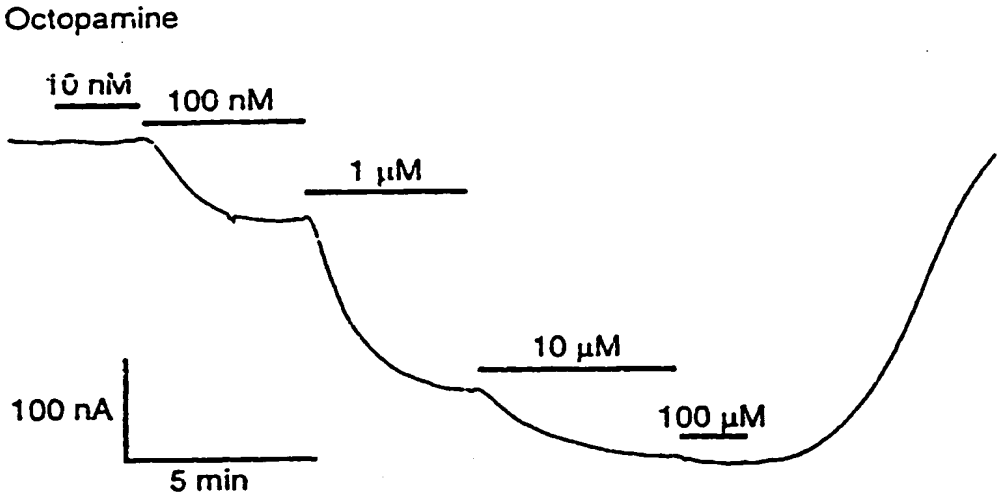
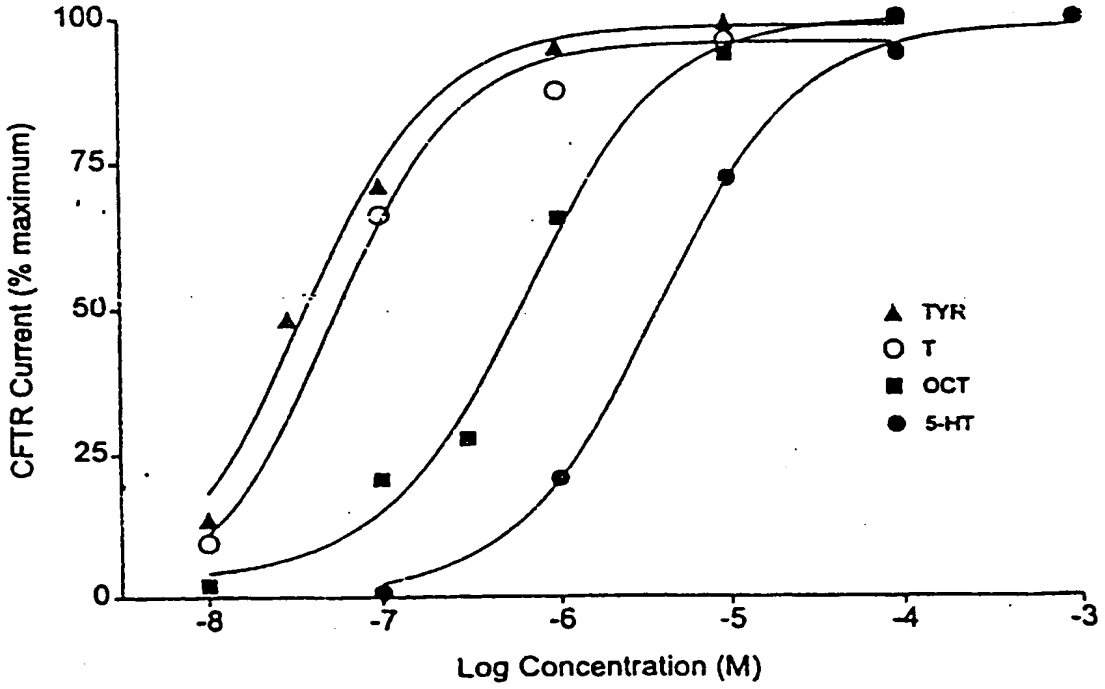


Figure 11B



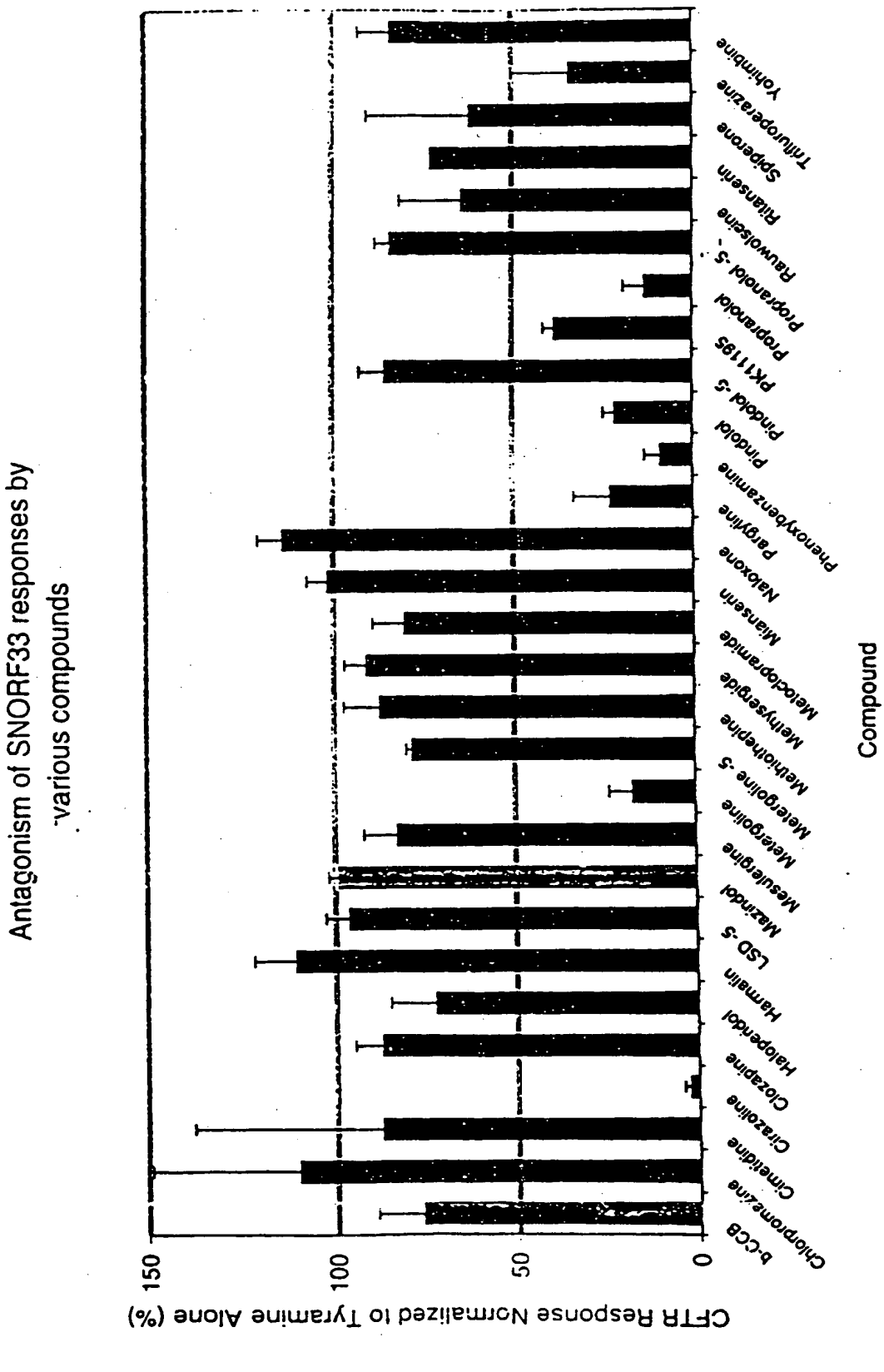

Antagonism of SNORF33 responses by various compounds
CFTR Response Normalized to Tyramine Alone (%)
150
100
50
0
Compound
b-CCB
Chlorpromezine
Cimetidine
Clazoline
Clozapine
Haloperidol
Hammalin
LSD-S
Mazindol
Mesuergine
Meergoline
Meergoline -S
Methiothepine
Methysergide
Metoclopramide
Mianserin
Naboxone
Pargyline
Phenoxybenzamine
Pindolol
Pindolol -S
PK11195
Propranolol
Propranolol -S
Rauwolscine
Rilanserin
Spiperone
Trifluoperazine
Yohimbine

Figure 12

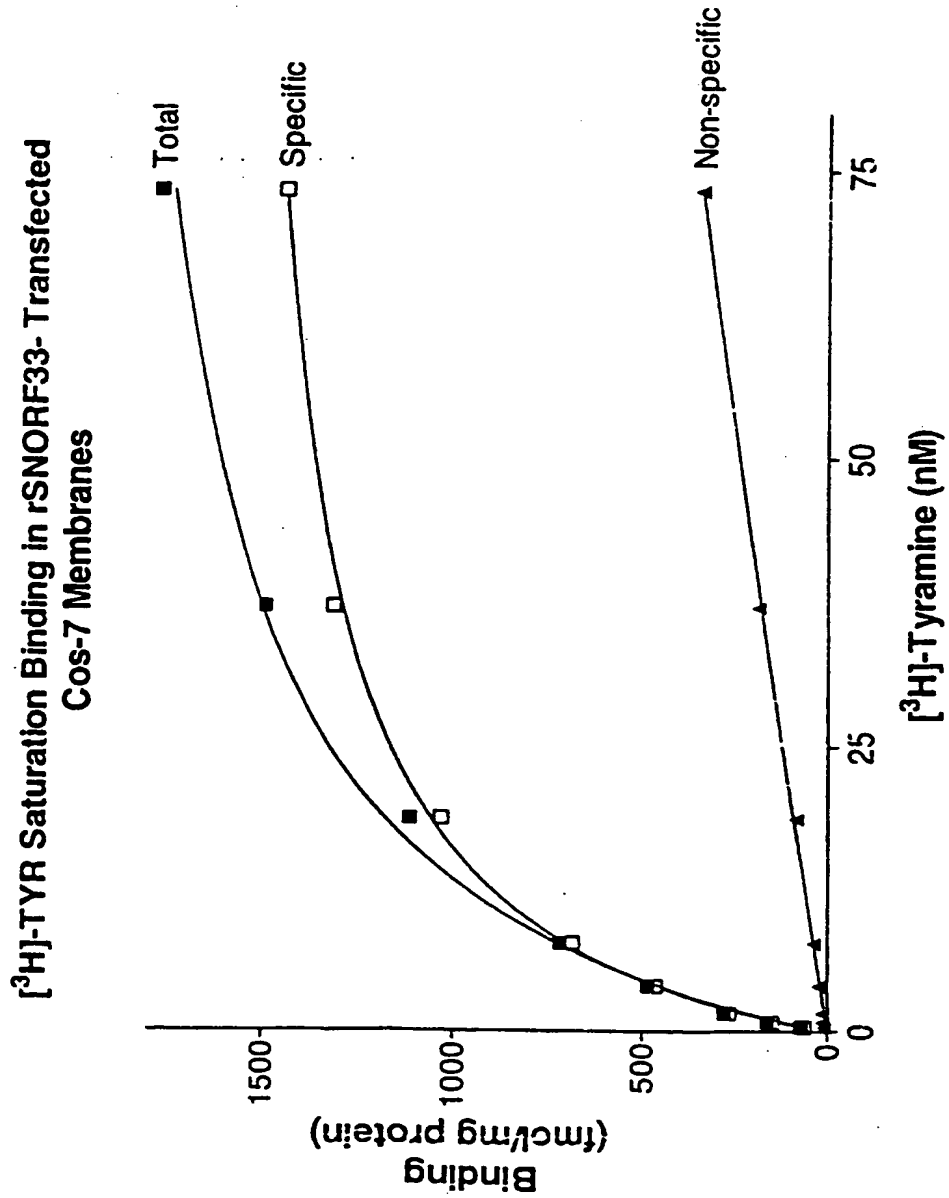

[3H]-TYR Saturation Binding in rSNORF33- Transfected Cos-7 Membranes
Total
Specific
Non-specific
Binding (fmol/mg protein)
1500
1000
500
0
0
25
50
75
[3H]-Tyramine (nM)

Figure 13

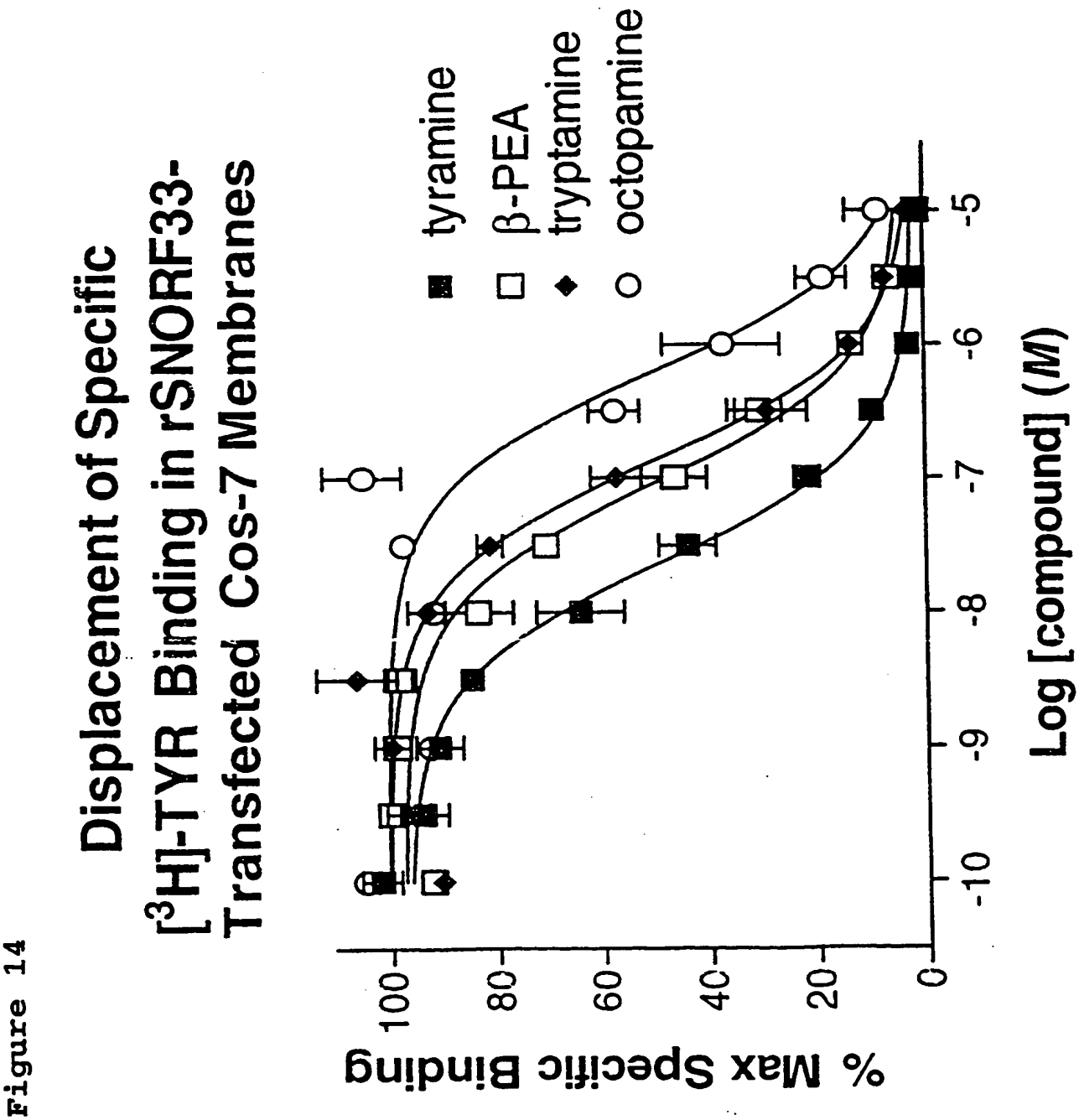

Displacement of Specific
[3H]-TYR Binding in rSNORF33-
Transfected Cos-7 Membranes
tyramine
β-PEA
tryptamine
octopamine
% Max Specific Binding
100
80
60
40
20
0
-10
-9
-8
-7
-6
-5
Log [compound] (M)

Figure 14

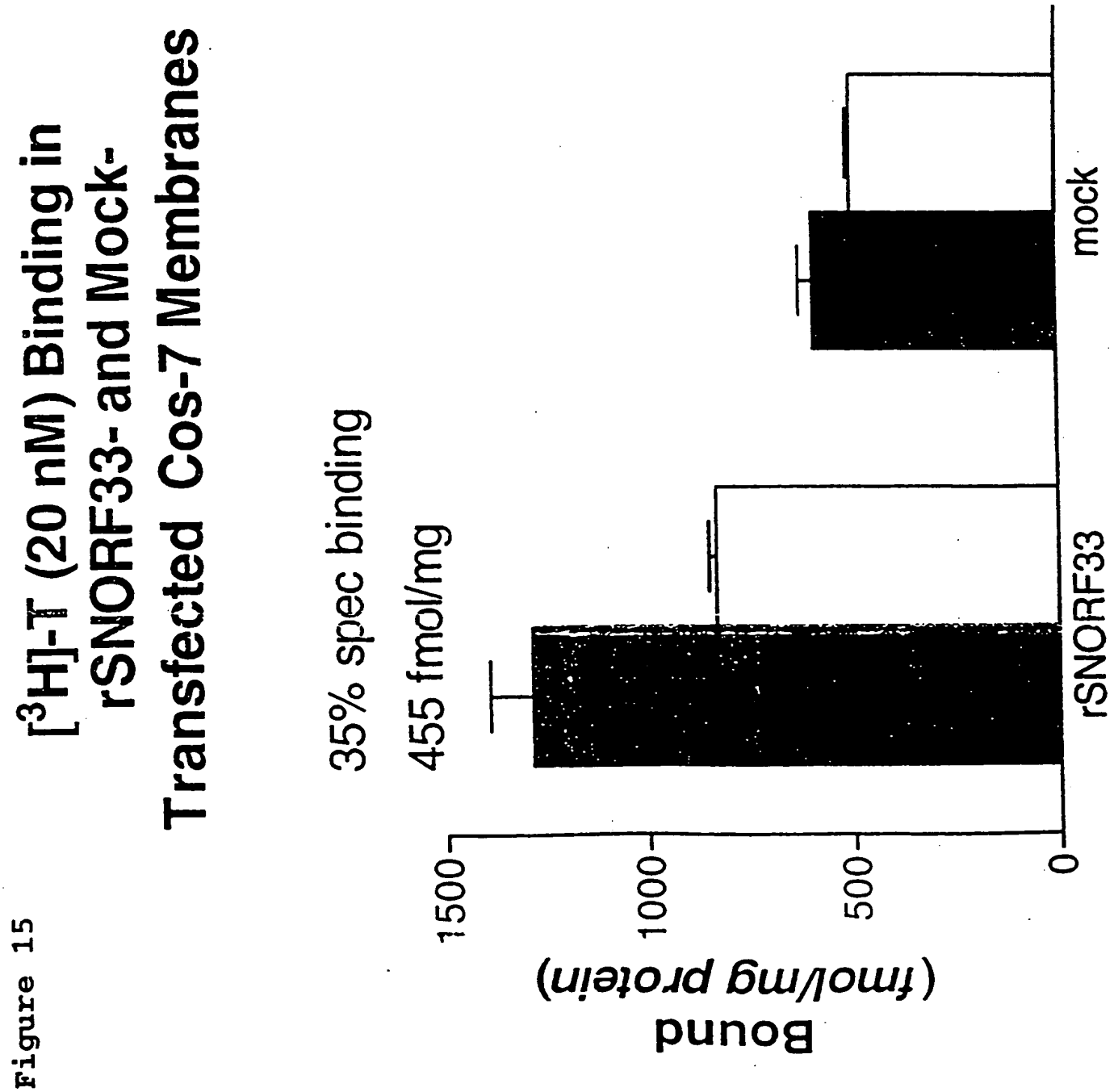

[3H]-T (20 nM) Binding in rSNORF33- and Mock-Transfected Cos-7 Membranes
35% spec binding
455 fmol/mg
total
NS
Bound (fmol/mg protein)
1500
1000
500
0
rSNORF33
mock

Figure 15

Figure 16

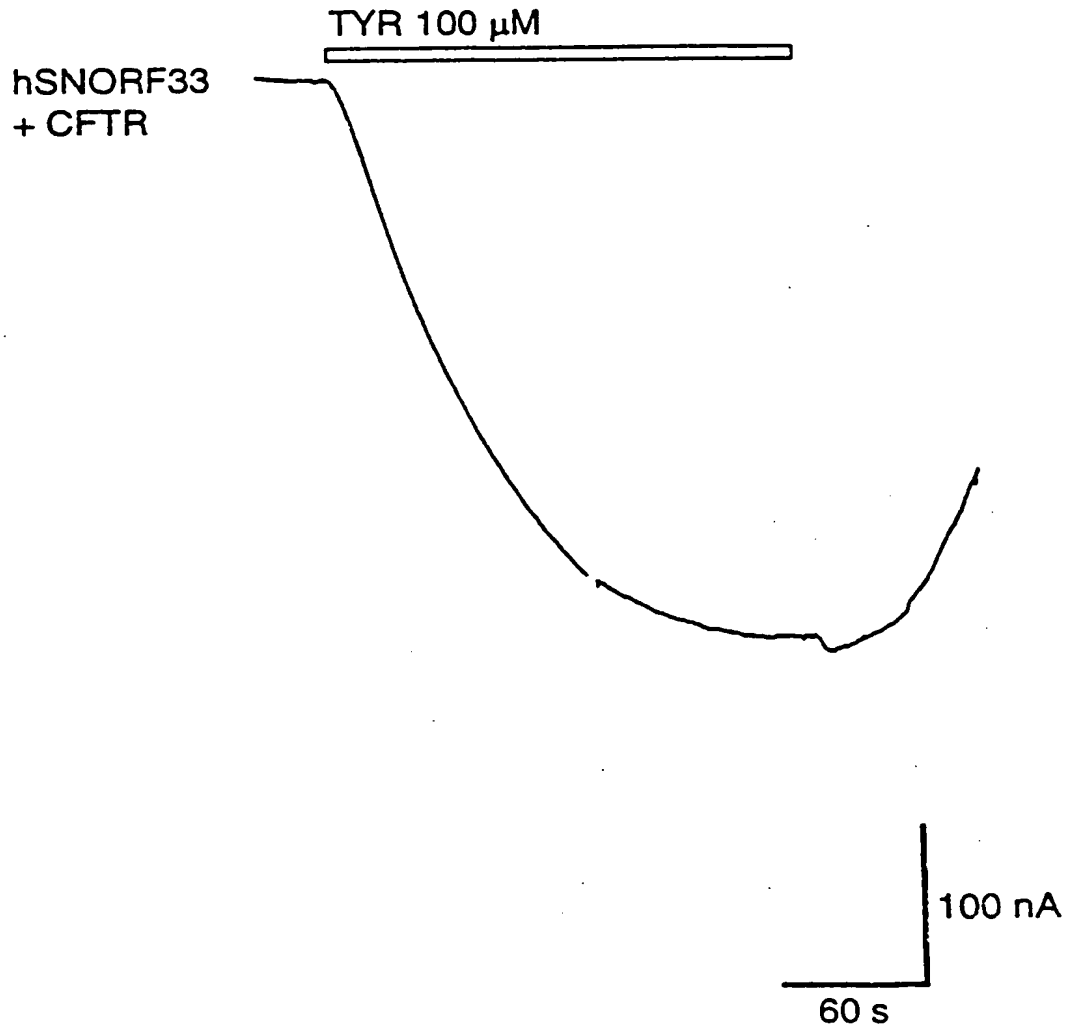


Figure 17

```
1   GGTACTGGCGTTCATGACTTCCTTCTATATACCTGGATCTGTTATGTTATTTGTTTACTA  60

61  TAGGATATATTTCATAGCTAAAGGACAAGCAAGGTCAATCAATCGTACGAATGTTCAAGT 120

121 TCGATTGGAAGGGAAAAGCCAAGCACCACAAAGCAAGGAAACAAAAGCCGCGAAGACCTT 180

181 AGGGATCATGGTGGGCGTTTTCCTCGTATGCTGGTGCCCGTTCTTTCTCTGCACGGTCCT 240

241 GGACCCTTTCCT                                                  252
```

Figure 18

1	V	L	A	F	M	T	S	F	Y	I	P	G	S	V	M	L	F	V	Y	Y	20
21	R	I	Y	F	I	A	K	G	Q	A	R	S	I	N	R	T	N	V	Q	V	40
41	G	L	E	G	K	S	Q	A	P	Q	S	K	E	T	K	A	A	K	T	L	60
61	G	I	M	V	G	V	F	L	V	C	W	C	P	F	F	L	C	T	V	L	80
81	D	P	F																		83

FIGURE 19A

```
1   TGCAGTGATGCATCTTTGCCACGCTATCACAAACATTTCCCACAGAAACAGCGACTGGTC   60
61  AAGAGAAGTCCAAGCTTCCCTGTACAGCTTAATGTCACTCATAATCCTGGCCACTCTGGT  120
121 TGGCAACTTAATAGTAATAATTTCCATATCCCATTTCAAGCAACTTCATACACCCACCAA  180
181 CTGGCTCCTTCACTCCATGGCCATTGTCGACTTTCTGCTGGGCTGTCTGATAATGCCCTG  240
241 CAGCATGGTGAGAACTGTTGAGCGCTGTTGGTATTTTGGGGAAATCCTCTGTAAAGTTCA  300
301 CACCAGCACCGATATCATGCTGAGCTCCGCCTCCATTTTCCACTTAGCTTTCATTTCCAT  360
361 TGACCGCTACTGTGCTGTGTGTGACCCTTTGAGATACAAAGCCAAGATCAATATCTCCAC  420
421 TATTCTTGTGATGATCCTCGTTAGTTGGAGCCTTCCTGCTGTTTATGCATTTGGGATGAT  480
481 CTTCCTGGAACTGAACTTAAAAGGAGTGGAAGAGCTGTATCGCAGTCAGGTCAGCGACCT  540
541 GGGCGGCTGTTCTCCCTTCTTTAGTAAAGTATCTGGGGTACTGGCGTTCATGACTTCCTT  600
```

FIGURE 19B

601	CTATATACCTGGATCTGTTATGTTATTTGTTTACTATAGGATATATTTCATAGCTAAAGG	660
661	ACAAGCAAGGTCAATCAATCGTACGAATGTTCAAGTTGGATTGGAAGGGAAAAGCCAAGC	720
721	ACCACAAAGCAAGGAAACAAAAGCCGCGAAGACCTTAGGGATCATGGTGGGCGTTTTCCT	780
781	CGTATGCTGGTGCCCGTTCTTTCTCTGCACGGTCCTGGACCCTTTCCTGGGCTATGTTAT	840
841	CCCACCCTCTCTGAATGACGCACTGTATTGGTTTGGGTACTTGAATTCTGCCCTCAATCC	900
901	GATGGTTTATGCCTTTTTCTATCCCTGGTTCAGAAGAGCCTTGAAGATGGTTCTCCTTGG	960
961	TAAAATTTTCCAAAAAGATTCATCTAGGTCTAAGCTATTTTTGTAACGCAATTCATGAAA	1020
1021	CCCATGTATTT	1031

FIGURE 20A

1	M	H	L	C	H	A	I	T	N	I	S	H	R	N	S	D	W	S	R	E	20
21	V	Q	A	S	L	Y	S	L	M	S	L	I	I	L	A	T	L	V	G	N	40
41	L	I	V	I	I	S	I	S	H	F	K	Q	L	H	T	P	T	N	W	L	60
61	L	H	S	M	A	I	V	D	F	L	L	G	C	L	I	M	P	C	S	M	80
81	V	R	T	V	E	R	C	W	Y	F	G	E	I	L	C	K	V	H	T	S	100
101	T	D	I	M	L	S	S	A	S	I	F	H	L	A	F	I	S	I	D	R	120
121	Y	C	A	V	C	D	P	L	R	Y	K	A	K	I	N	I	S	T	I	L	140
141	V	M	I	L	V	S	W	S	L	P	A	V	Y	A	F	G	M	I	F	L	160
161	E	L	N	L	K	G	V	E	E	L	Y	R	S	Q	V	S	D	L	G	G	180

FIGURE 20B

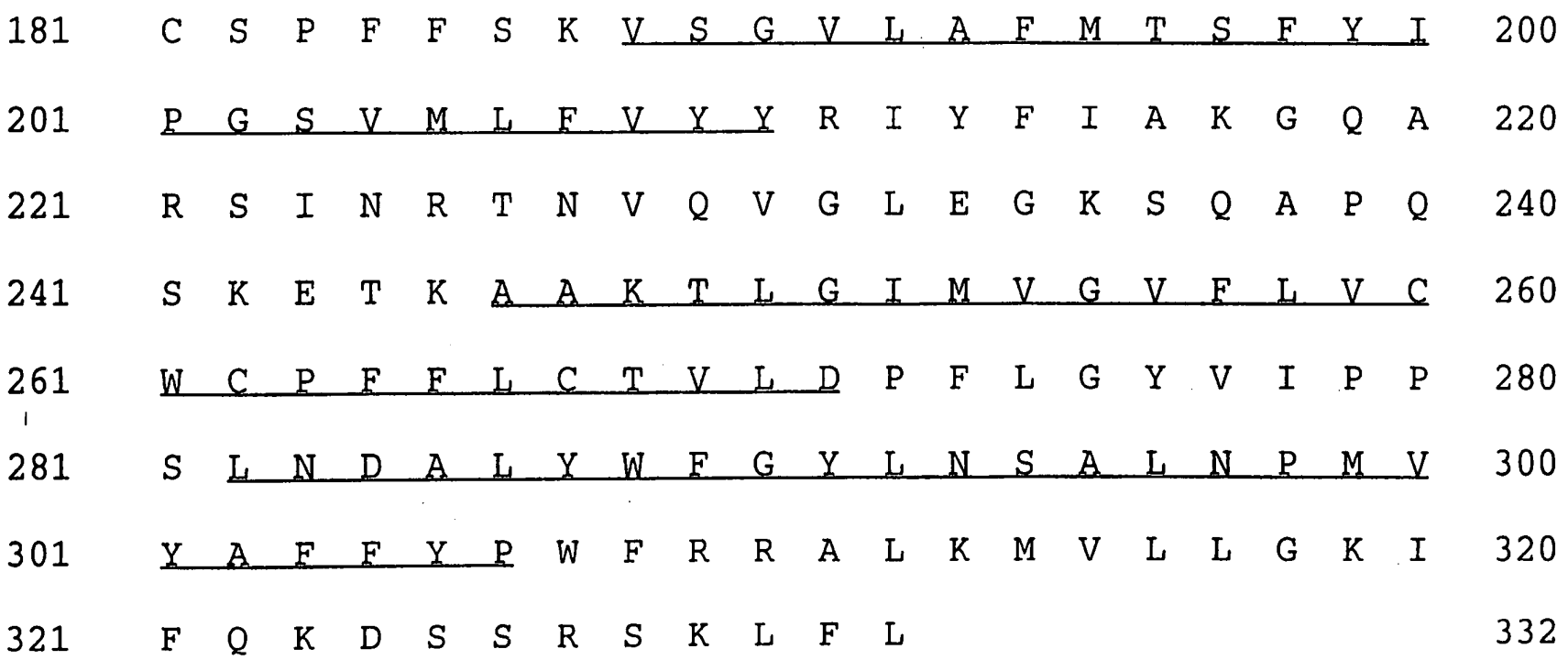

181 C S P F F S K V S G V L A F M T S F Y I 200
201 P G S V M L F V Y Y R I Y F I A K G Q A 220
221 R S I N R T N V Q V G L E G K S Q A P Q 240
241 S K E T K A A K T L G I M V G V F L V C 260
261 W C P F F L C T V L D P F L G Y V I P P 280
281 S L N D A L Y W F G Y L N S A L N P M V 300
301 Y A F F Y P W F R R A L K M V L L G K I 320
321 F Q K D S S R S K L F L 332

FIGURE 21

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Rat    SNORF33  ~MhlCHnsaN IShtnsnWSr dVrASLYSLi sLIILtTLVG
Mouse  SNORF33  ~MhlCHaitN IShrnsdWSr eVqASLYSLm sLIILaTLVG
Human  SNORF33  mMpfCHniiN IScvknnWSn dVrASLYSLm vLIILtTLVG
Consensus       -M--CH---N IS-----WS- -V-ASLYSL- -LIIL-TLVG

Rat    SNORF33  NLIVIiSISH FKQLHTPTNW LlHSMAvVDF LLGCLvMPyS
Mouse  SNORF33  NLIVIiSISH FKQLHTPTNW LlHSMAiVDF LLGCLiMPcS
Human  SNORF33  NLIVIvSISH FKQLHTPTNW LiHSMAtVDF LLGCLvMPyS
Consensus       NLIVI-SISH FKQLHTPTNW L-HSMA-VDF LLGCL-MP-S

Rat    SNORF33  MVRtvEhCWY FGElfCKlHT STDIMLSSAS IlHLaFISID
Mouse  SNORF33  MVRtvErCWY FGEilCKvHT STDIMLSSAS IfHLaFISID
Human  SNORF33  MVRsaEhCWY FGEvfCKiHT STDIMLSSAS IfHLsFISID
Consensus       MVR--E-CWY FGE--CK-HT STDIMLSSAS I-HL-FISID

Rat    SNORF33  RYyAVCDPLR YKAKiNlaaI fVMIliSWSl PAVfAFGMIF
Mouse  SNORF33  RYcAVCDPLR YKAKiNistI lVMIlvSWSl PAVyAFGMIF
Human  SNORF33  RYyAVCDPLR YKAKmNilvI cVMIfiSWSv PAVfAFGMIF
Consensus       RY-AVCDPLR YKAK-N---I -VMI--SWS- PAV-AFGMIF

Rat    SNORF33  LELNleGvEE lYhnqVfclr GCfpFFSKvS GVLaFMTSFY
Mouse  SNORF33  LELNlkGvEE lYrsqVsdlg GCspFFSKvS GVLaFMTSFY
Human  SNORF33  LELNfkGaEE iYykhVhcrg GCsvFFSKiS GVLtFMTSFY
Consensus       LELN--G-EE -Y---V---- GC--FFSK-S GVL-FMTSFY

Rat    SNORF33  IPGSvMLfVY YRIYfIAKgQ ARsInraN.. lQvGLEgesr
Mouse  SNORF33  IPGSvMLfVY YRIYfIAKgQ ARsInrtN.. vQvGLEgksq
Human  SNORF33  IPGSiMLcVY YRIYlIAKeQ ARlIsdaNqk lQiGLEmkng
Consensus       IPGS-ML-VY YRIY-IAK-Q AR-I---N-- -Q-GLE----

Rat    SNORF33  apQSKEtKAa KTLGImvGVF LlCWCPFFfC mVlDPFLgYv
Mouse  SNORF33  apQSKEtKAa KTLGImvGVF LvCWCPFFlC tVlDPFLgYv
Human  SNORF33  isQSKErKAv KTLGIvmGVF LiCWCPFFiC tVmDPFLhYi
Consensus       --QSKE-KA- KTLGI--GVF L-CWCPFF-C -V-DPFL-Y-

Rat    SNORF33  IPPtLNDtLn WFGYLNSafN PMVYAFFYPW FRrALKMvLf
Mouse  SNORF33  IPPsLNDaLy WFGYLNSalN PMVYAFFYPW FRrALKMvLl
Human  SNORF33  IPPtLNDvLi WFGYLNStfN PMVYAFFYPW FRkALKMmLf
Consensus       IPP-LND-L- WFGYLNS--N PMVYAFFYPW FR-ALKM-L-

Rat    SNORF33  GKIFQKDSSR sKLFL
Mouse  SNORF33  GKIFQKDSSR sKLFL
Human  SNORF33  GKIFQKDSSR cKLFLelss
Consensus       GKIFQKDSSR -KLFL----
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